

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/B2004/002455

International filing date (day/month/year)
02.08.2004

Priority date (day/month/year)
08.08.2003

International Patent Classification (IPC) or both national classification and IPC
B60L11/18

Applicant
TOYOTA JIDOSHA KABUSHIKI KAISHA

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITYInternational application No.
PCT/IB2004/002455

IAP20 Res'd PCT/IB 01 FEB 2006

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/002455

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. ☐ It has not been possible to consider the validity of the priority claim because a copy of the priority document was not available to the ISA at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

4. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/B2004/002455

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 6

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the whole application or for said claims Nos. 6
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
 - the written form ☐ has not been furnished
 - ☐ does not comply with the standard
 - the computer readable form ☐ has not been furnished
 - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/002455

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:
- ☒ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☐ not paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
 - ☒ the parts relating to claims Nos. 1-5, 11-18

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	7-10
	No: Claims	1-5, 11-18
Inventive step (IS)	Yes: Claims	
	No: Claims	1-5, 7-18
Industrial applicability (IA)	Yes: Claims	1-5, 11-18
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/002455

Box No. VI Certain documents cited

1. Certain published documents (Rules 43*bis*.1 and 70.10)
and /or
2. Non-written disclosures (Rules 43*bis*.1 and 70.9)
see form 210

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/IB2004/002455

IAP20 Rec'd PCT/PTO 01 FEB 2006

Re Item IV.

1. The separate inventions/groups of inventions are:

1.1. Claims 1-5, 11-18

A fuel cell equipped vehicle comprising:
a power control unit which converts power supplied from a fuel cell and that supplies that converted power to a load, wherein high voltage wiring, which connects at least one of the fuel cell and the load to the power control unit, is provided on one side of either the left or the right side of the vehicle, and a fuel line for supplying a fuel gas to the fuel cell is provided on the other side of the vehicle, which is opposite the side on which the high voltage wiring is provided.

Further details of the first group of inventions are directed to the arrangement of a connector and of a fuel supply source.

1.2. Claim 6

A fuel cell equipped vehicle comprising:
a power control unit which converts power supplied from a fuel cell and that supplies that converted power to a load, wherein high voltage wiring, which connects at least one of the fuel cell and the load to the power control unit, is provided on one side of either the left or the right side of the vehicle, and a fuel line for supplying a fuel gas to the fuel cell is provided on the other side of the vehicle, which is opposite the side on which the high voltage wiring is provided.

Further details of the second invention concern the outer shape of a case for the power control unit.

1.3. Claims 7-10

A fuel cell equipped vehicle comprising:
a power control unit which converts power supplied from a fuel cell and that supplies that converted power to a load, wherein high voltage wiring, which connects at least one of the fuel cell and the load to the power control unit, is provided on one side of either the left or the right side of the vehicle, and a fuel line for supplying a fuel gas to the fuel cell is provided on the other side of the vehicle, which is opposite the side on which the high voltage wiring is provided.

Further details of the third group of inventions are directed to the frame structure of the vehicle.

2. The three identified inventions or groups of inventions are not so linked as to form a single general inventive concept (Rule 13.1 PCT) for the following reasons:
 - 2.1 As single general inventive concept of the inventions 1, 2 and 3 can be regarded a fuel cell equipped vehicle as claimed in claim 1 comprising: a power control unit which converts power supplied from a fuel cell and that supplies that converted power to a load, wherein high voltage wiring, which connects at least one of the fuel cell and the load to the power control unit, is provided on one side of either the left or the right side of the vehicle, and a fuel line for supplying a fuel gas to the fuel cell is provided on the other side of the vehicle, which is opposite the side on which the high voltage wiring is provided.
 - 2.2 However, such a vehicle is already known for example from the disclosure of D1 (see Figures 2, 3 and 7; column 6, line 59 to column 8, line 29, wherein the feature "high voltage" is implicitly disclosed since every fuel cell used in a vehicle has a high voltage output). Therefore, the inventions 1, 2 and 3 lack a single general inventive concept as required by Rule 13.1 PCT.
 - 2.3 The remaining feature of invention 1 concerns the arrangement of a connector and a fuel supply source. The remaining features of invention 2 concern the outer shape of a case for the power control unit. The remaining features of invention 3 are directed to the frame structure of the vehicle.
 - 2.4 As directly apparent, the remaining features of inventions 1, 2 and 3 relate to solutions of clearly distinct technical problems.

Invention 1 is directed to the arrangement of additional components of a vehicle. Invention 2 is directed to space savings due to the outer shape of the case of the power control unit.

Finally, invention 3 relates to improvement of the frame structure of the vehicle.

Consequently, inventions 1, 2 and 3 are not so linked as to form a single general inventive concept according to Rule 13.1 PCT.

- 2.5 Since the applicant has paid in no additional search fees for invention 2, only invention 1 and invention 3 will be processed, i.e. claims 1 to 5 and 7 to 18.

Re Item V.

Handwritten: 第-12 (with an arrow pointing up and to the right)

1. The following documents are referred to in this communication:

- D1: US 6 107 691 A (GORE GERALD E ET AL) 22 August 2000 (2000-08-22)
- D2: US 2003/046802 A1 (CHERNOFF ADRIAN B ET AL) 13 March 2003 (2003-03-13)
- D3: US-B1-6 220 380 (TAKEUCHI AKISHIRO ET AL) 24 April 2001 (2001-04-24)
- D4: EP-A-0 677 417 (DAIMLER BENZ AG) 18 October 1995 (1995-10-18)

2. Novelty Art. 33(1) and (2) PCT

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.
Document D1 discloses (the references in parenthesis applying to this document):

A fuel cell equipped vehicle comprising: a power control unit which converts power supplied from a fuel cell and that supplies that converted power to a load (figure 9a, "inverter"), wherein high voltage wiring (implicitly disclosed in the term fuel cell vehicle since all those vehicles are operated at relatively high voltages), which connects at least one of the fuel cell and the load to the power control unit, is provided on one side of either the left or the right side of the vehicle, and a fuel line for supplying a fuel gas to the fuel cell is provided on the other side of the vehicle, which is opposite the side on which the high voltage wiring is provided (figure 3, which discloses plug-in connectors for natural gas on one side of the vehicle and for electricity on the opposite side of the vehicle, the presence of connectors implies the presence of respective fuel lines and high voltage wiring within the vehicle at the respective sides of the vehicle).

- 2.2 Dependent claims 2 to 5 and 7 to 11 do not contain any features which, in

combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

- 2.3 Although claims 1, 12, 17 and 18 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and/or in respect of the terminology used for the features of that subject-matter. The aforementioned objections to the subject matter of claim 1 apply mutatis mutandis to the subject matters of claims 12, 17 and 18.

Consequently, the subject matters of claims 12, 17 and 18 do not fulfill the requirements of Art. 33(1) and (2) PCT with respect to novelty.

- 2.4 Dependent claims 13 to 16 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

Re Item VII.

1. Clarity Art. 6 PCT

- 1.1 The application does not meet the requirements of Article 6 PCT, because claims 1 and 17 are not clear.
- 1.2 According to claims 1 and 17 the position of the high voltage wiring and the fuel line are defined by the expressions "one side" and "other side" of "either the right or the left side of the vehicle". This definition is unclear since no direction is given with respect to which the "sides" could be right or left.